UNIVERSITY of PENNSYLVANIA

PHILADELPHIA 4

The College

BOTANICAL LABORATORY
38th and Woodland Ave.

April 6, 1961

Dr. Phillip Morrison
Department of Physics
Cornell University
Ithaca, New York

Dear Dr. Morrison:

Following up our conversation at the Johnson Foundation, I would like to outline my suggested alternative to the view and plan you described (though I reserve the right to publish these ideas in more detail).

1. It appears to be physically impossible for microorganisms to survive (let alone grow!) at a surface subjected to the intense ultraviolet radiation and the extreme dryness present on Mars. Hence the Scotch tape notion seems foredoomed to failure.

2. On the other hand, ultraviolet radiation and aridity could be readily overcome by a macroorganism with a suitable skin. Therefor, the first Martian collecting box should take in a sample with a cookie cutter rather than a sticky tongue.

3. The best hope of demonstrating life in the sample lies in assuming an absolute minimum about the Martian "plants." I suggest as such a minimum that they are photosynthetic.

4. No matter what the detailed mechanism of the photosynthetic process may be, it should be demonstrable calorimetrically. That is, one could show that some of the light absorbed by the sample does not appear as heat. Confirmation of the inference of a biological mechanism might be obtained with an action spectrum.

Sincerely,

Lionel Jaffe

Lionel Jaffe

LJ/rds

MORRISON, P.

P Morrison Physics, Cornell, Ithaca NY

He might as well get to take part in the job!
Sincerely
Philip Morrison

Dear Dr. Lederberg:

I enclose this letter for your information. It arose out of an informal talk of mine on space plans and the Martian surface probe you have been so concerned with. I am not sure I agree with Jaffe on 1., but it may be a point worth discussing. Perhaps you would find it useful to write him.